REMARKS

This Amendment is fully responsive to the final Office Action dated October 27, 2009, issued in connection with the above-identified application. Claims 27-30 are pending in the present application. With this Amendment, claims 27 and 29 have been amended. No new matter has been introduced by the amendments made to the claims. Favorable reconsideration is respectfully requested.

I. Interview Summary

The Applicants thank Examiner Roberts for granting the telephone interview (hereafter "interview") conducted with the Applicants' representative on January 7, 2010. During the interview, the distinguishable features between the present invention (as recited in independent claim 27 as an exemplary independent claim) and the cited prior art were discussed in detail.

It was noted that Sohm merely discloses that pixels in each neighbor block are compared to pixels in a current block and the best correlated motion vectors are assigned as a predicted motion vector (see e.g., col. 17, lines 20-28; and Fig. 9). Conversely, in the present invention, a motion vector obtaining unit obtains a motion vector of a corner block located in the corner of a co-located macroblock. Thus, consideration of a motion vector of a block located in the corner of a co-located macroblock (as in the present invention) is clearly different from the technique disclosed in Sohm (i.e., consideration of motion vectors of a macroblock).

It was also noted that because of the deficiencies noted in Sohm, no combination of the cited prior art can possibly disclose or suggest determining whether to perform motion compensation using a "0" motion vector or a motion vector of an adjacent block, by using a motion vector of a decoded block located in the corner of a co-located macroblock.

Additionally, it was noted that the claims would be amended to point out that the obtaining of the motion vector (as noted above) is done when a co-located block is composed of a plurality of blocks for which motion compensation has been performed and a size of each of the plurality of blocks is different from the size of the current block.

At the conclusion of the interview, the Examiner agreed to further consider the arguments presented during interview if filed in a formal response to the Office Action; given that it was not initially clear that Sohm disclosed or suggested the features discussed (e.g., particularly with

regard to Fig. 9). Additionally, the Examiner also indicated that further consideration would be given to the proposed claim amendments (i.e., the size of each of a plurality of blocks being different from the size of the current block).

II. Rejections under 35 U.S.C. 103

In the Office Action, claims 27 and 29 have been rejected under 35 U.S.C. 103(a) as being unpatentable over Sohm et al. (U.S. Patent No. 7,260,148, hereafter "Sohm") in view of an article entitled "Information Technology-Coding of Audio-Visual-Objects-Part 2: Visual ISO/IEC 14496-2" Second Edition, 2001-12-01 (hereafter "ISO-14496") in view of Tucker et al. (U.S. Patent No. 5,903,313, hereafter "Tucker") in view of Frederiksen et al. (U.S. Patent No. 5,272,529, hereafter "Frederiksen"), and further in view of well known art.

The Applicants have amended independent claims 27 and 29 to more clearly distinguish the present invention from the cited prior art. The amendments to the claims are consistent with the claim amendments discussed during the interview conducted on January 7, 2010. As amended, independent claim 27 recites following features:

"[a] motion compensation method for generating a predictive image of a current macroblock included in a current picture with reference to a motion vector of an adjacent macroblock that is located adjacent to the current macroblock, the motion compensation method comprising:

specifying, using an adjacent macroblock specifying unit, plural adjacent macroblocks which are located adjacent to the current macroblock and are already decoded;

deriving, using a motion vector deriving unit, a motion vector of a current block included in the current macroblock using plural motion vectors of the specified plural adjacent macroblocks;

specifying, using a co-located macroblock specifying unit, a co-located macroblock which is co-located with the current macroblock and included in a picture different from the current picture including the current macroblock;

obtaining, using a motion vector obtaining unit, a motion vector of a corner block located in a corner of the co-located macroblock, when a co-located block is composed of a plurality of blocks for which motion compensation has been performed and a size of each of the

plurality of blocks is different from a size of the current block, the co-located block being co-located with the current block included in the current macroblock and being included in the co-located macroblock;

judging, using a judging unit, if a size of the obtained motion vector of the corner block is within a predetermined range; and

generating, using a generating unit, a predictive image of the current block which is co-located with the co-located block, based on the result of the judging of whether the size of the obtained motion vector of the corner block is within the predetermined range,

wherein, in the generating of a predictive image of the current block, the generating is performed in such a manner that, if a size of the obtained motion vector of the corner block is judged within the predetermined range, the predictive image of the current block is generated by setting the motion vector of the current block to be "0", and

the generating is performed in such a manner that, if a size of the obtained motion vector of the corner block is judged beyond the predetermined range, the predictive image of the current block is generated by setting the motion vector of the current block to be the derived motion vector." (Emphasis added).

The features emphasized above in independent claim 27 are similarly recited independent claim 29 (as amended). That is, independent claim 29 is directed to a corresponding apparatus that includes all the features of the method of independent claim 27. The features emphasized above in independent claim 27 (and similarly recited independent claim 29) are fully supported by the Applicants' disclosure.

The present invention (as recited in independent claims 27 and 29) is distinguishable from the cited prior art in that the motion vectors to be used are determined based on a size of a motion vector located in the corner of a co-located block, wherein the co-located block is composed of a plurality of blocks and the size of each of the plurality of blocks is different from a size of the current block. Additionally, the motion vectors are generated using (a) 0 vector or (b) a motion vector of a macroblock located around a current macroblock.

In the Office Action, the Examiner relies primarily on the combination of Sohm, ISO-14496, Tucker and Frederiksen for disclosing or suggesting all the features recited in independent

claims 27 and 29. However, the Applicants assert that no combination of Sohm, ISO-14496, Tucker and Frederiksen (with any other well know art) discloses or suggests all the features now recited in independent claims 27 and 29, as amended.

Sohm discloses a technique for searching neighbor blocks at the time of estimating a motion of a current block (see e.g., col. 17, lines 11 to 32 and Fig. 9). Sohm, however, merely discloses that pixels in each neighbor block are compared to pixels in a current block and the best correlated motion vector is assigned as a predicted motion vector (see e.g., col. 17, lines 20 to 28 and Fig. 9).

Sohm fails to disclose or suggest the features of the present invention (as recited in independent claims 27 and 29) of determining which of motion vectors is to be used based on a size of a motion vector located in a corner of a co-located block, when the co-located block is composed of a plurality of blocks for which motion compensation has been performed and a size of each of the plurality of blocks is different from a size of the current block.

Additionally, Sohm fails to disclose or suggest the features of the present invention (as recited in independent claims 27 and 29) of generating motion vectors using (a) 0 vector or (b) a motion vector of a macroblock located around a current macroblock based on the determination.

ISO-14496 discloses or suggests motion compensation derived by employing and scaling motion vectors of a co-located macroblock to determine a motion vector of a current macroblock (see e.g., section 7.6.9.5.1). Further, ISO-14496 discloses or suggests determining an average of motion vectors of all the pixels included in a co-located macroblock and using the average for motion compensation in a temporal direct mode (see e.g., section 7.6.9.5.2).

ISO fails to disclose or suggest that a motion vector of a block located in a corner of the co-located macroblock is obtained, when a co-located block is composed of a plurality of blocks for which motion compensation has been performed and a size of each of the plurality of blocks is different from a size of the current block, as in the present invention (as recited in independent claims 27 and 29).

Therefore, even if Sohm is combined with ISO-144496, the combination still fails to disclose or suggest all the features now recited in independent claims 27 and 29 (as amended).

Moreover, Tucker discloses determining whether or not to perform motion compensation

by comparing a threshold value with a size of a motion vector (see e.g., col.4, lines 27 to 39, col. 7, lines 29 to 51; and Fig. 4A, element 48).

Tucker fails to disclose that a motion vector of a block located in a corner of the co-located macroblock is obtained, when a co-located block is composed of a plurality of blocks for which motion compensation has been performed and a size of each of the plurality of blocks is different from a size of the current block, as in the present invention (as recited in independent claims 27 and 29)..

Frederiksen discloses an DCT processor, data flow manager and vector quantizer (see e.g., Fig. 3). The DCT processor furnishes an 8x8 coefficient array. The three baseband coefficients included in the coefficient array are passed to the data flow manager (see e.g., col. 7, lines 33 to 40); and mid-band and high-band vectors formed by other coefficients included in the coefficient array are passed to the vector quantizer (see e.g., col.7, lines 40 to 44). As described in Frederiksen, the vectors entering the vector quantizer are compared to a threshold value, and when the resultant difference is less than the threshold value, a zero vector value is inserted for that vector (see e.g., col. 7, lines 45 to 51).

Frederiksen fails to disclose that a motion vector of a block located in a corner of the co-located macroblock is obtained, when a co-located block is composed of a plurality of blocks for which motion compensation has been performed and a size of each of the plurality of blocks is different from a size of the current block.

Frederiksen also fails to disclose generating a predictive image of the current block which is co-located with the co-located block, based on the result of the judging of whether the size of the obtained motion vector of the corner block is within the predetermined range.

Therefore, even if Sohm is combined with or modified based on the teachings of ISO-144496, Tucker or Frederiksen (and any other well known art), the combination or modification still would not disclose or suggest all the features now recited in independent claims 27 and 29 (as amended).

Accordingly, no combination of Sohm, ISO-14496, Tucker, Frederiksen and any other well known art cited by the Examiner would result in, or otherwise render obvious, the features now recited in at least independent claims 27 and 29 (as amended).

In the Office Action, claims 28 and 30 have been rejected under 35 U.S.C. 103(a) as being unpatentable over Sohm in view of ISO-14496 in view of Tucker, Frederiksen and well known prior art, and further in view of Chang et al. (U.S. Patent No. 6,483,876).

Claims 28 and 30 depend respectively from independent claims 27 and 29. As noted above, Sohm, ISO-14496, Tucker, Frederiksen and the well known art cited by the Examiner fail to disclose or suggest all the features now recited in independent claims 27 and 29 (as amended). Additionally, Chang fails to overcome the deficiencies noted above in Sohm, ISO-14496, Tucker, Frederiksen and the well known art cited by the Examiner. Accordingly, no combination of Sohm, Tucker, Frederiksen, the well known art cited by the Examiner and Chang would result in, or otherwise render obvious, the features now recited in claims 28 and 30 at least by virtue of their respective dependencies from independent claims 27 and 29.

III. Conclusion

In light of the above, the Applicants submit that all the pending claims are patentable over the prior art of record. The Applicants respectfully request that the Examiner withdraw the rejections presented in the outstanding Office Action, and pass this application to issue. The Examiner is invited to contact the undersigned attorney by telephone to resolve any remaining issues.

Respectfully submitted,

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January 20, 2010